PRIVATE WELL REGULATIONS

Under Chapter 111, Section 31 of the Massachusetts General Laws, the Walpole Board of Health hereby adopts the following regulations to protect the health of residents of the Town of Walpole who are served by private on-lot wells.

Section 1. Well Permit Applications

1.1 Any resident who wishes to construct a private on-lot well as a source of drinking water shall apply for a permit from the Walpole Board of Health.

1.2 Applicants shall provide the Board of Health with a locus map (U.S. Geological Survey quadrangle is recommended) and a copy of the State "Water Well Completion Report" with well location and septic systems (including adjacent lots) shown in diagram.

1.3 The Walpole Board of Health charges a $75.00 fee per application. Sampling costs shall be borne by the applicant.

Section 2. Wells

2.1 Wells shall be located at least 15 feet from any public or private way or street, 10 feet from any building, 10 feet from lot lines, 50 feet from any septic tank, and 100 feet from any leaching facility. Greater distances from leaching facilities may be required by the Board of Health if geologic or ground water flow conditions so warrant.

2.2 A plot plan shall be submitted with the application for a well permit to the Board of Health indicating the proposed location of the well, all buildings, boundary lines, and septic systems (within 200 feet).

2.3 Wells must be properly curbed and covered to prevent entrance or contamination and to divert surface drainage away from the well.

2.4 A pitless adapter shall be provided such that the permanent water-tight casing of the well shall terminate a minimum of 12 inches above the finished grade and/or the elevation of the 100-year flood.

Section 3. Well Drillers

3.1 All well drillers shall have a Massachusetts State License issued by the Water Resources Commission.

Section 4. Water Quality and Quantity

4.1 There shall be a minimum yield of 200 gallons per bedroom per day at 20 lbs. P.S.I. at the highest fixture serviced. A bedroom shall include undeveloped area that could be made into a bedroom. System capacity for semi-public supplies must be adequate to meet the projected needs.

4.2 Pressure tanks for individual home installations shall have a minimum capacity of 42 gallons.

4.3 Quantity tests shall be performed by competent pump or well drilling contractors and a well shall produce a supply for each dwelling unit served by an on-site well as follows:

Well Depth	GPM - 4 hrs.
0 to 150 feet	5 - 6
150 to 200 feet	4
200 to 300 feet	2 - 3
300 and over	1 - 2

4.4 Auxiliary power must be available to maintain a water supply for multiple dwellings.

4.5 The wall of a dug well shall extend at least 4 inches above the floor or the original ground surface.

4.6 Sanitary protection must be incorporated into the construction of the well and final finishing at grade shall include cement platform large enough to extend at least 2 ft. in all directions from the well casing itself.

4.7 All newly completed wells shall be disinfected in accordance with instructions from U.S. Environmental Protection Agency Manual of Individual Water Supply Systems.

4.8 Before approval, well log and pump test data shall be submitted to the Board of Health. It shall include a log of the well, showing the depth and type of over-burden, depth of casing installed below ground surface, diameter of casing and diameter of the hole in the rock, static water level, and the pumping rate that can be sustained for four (4) hours. The well (after pump testing shall recover to within eighty-five (85) percent of the original static water level within a twenty-four (24) hour period. The results of all testing shall be submitted to the Board of Health for approval and the well contractor shall be responsible for all data submitted.

4.9 Wells shall be cleared and sampled Sampling methods selected should minimize agitation of the sample.

4.10 PH and specific conductance shall be measured in the field.

4.11 The water sample shall be iced, picked up (within 24 hours) by a State-certified water quality laboratory and shall be analyzed for total coliform bacteria, turbidity, iron, manganese, nitrate nitrogen, chloride, and copper.

4.12 A bacteriological test to indicate a 0-100 ML coliform density shall be required. A total bacteria count shall also be determined at 35 C.

4.13 Water quality results shall meet limits to conform to current Federal and Massachusetts Drinking Standards. Presently they are:

pH	6.5 - 8.5
Specific Conductance	500 Mmhos/cm
Turbidity	5 SU
Iron	.30 ppm*
Manganese	.05 ppm*
Nitrate - Nitrogen	10 ppm
Chloride	250 ppm
Copper	1.0 ppm

* Excessive iron and manganese may be treated to achieve the required water quality standards.

* Sodium to be reported to the homeowner if greater than 20 mg/l.

Other parameters will be evaluated on a case by case basis by the Board of Health to establish the water's suitability as a domestic water supply.

Screening for Volatile Organic Compounds must also be tested in accordance with VOC analytical methods approved in accordance with 310 CMR 22.07B (8)". 524.4 EPA=

Screening for Heavy Metal Toxicity must also be done in accordance with EPA Methods.

200.7 EPA=

Section 5. Water Conditioning

5.0 Permanent disinfection of a polluted supply is prohibited. If the natural water quality does not meet the physical and chemical criteria, water conditioning shall be required. Water softener or other treatment backwash shall not be discharged into a septic system.

Section 6. Pipes and Equipment

6.0 All service pipes and connections shall be of nontoxic material and meet the specifications approved by the New England Water Works Association.

6.1 The installation of pipes shall be such that they are protected from crushing, freezing and/or attack by rodents.

6.2 Dissimilar metals should be discouraged in the water system. The use of non-conductive plastic inserts between pipes and fittings or the installation of sacrificial anodes is helpful in minimizing electric corrosion problems.

6.3 Electrical service grounds shall not be attached to the water piping. All electrical service and controls of well must be permitted, inspected and approved according to Town and State regulations.

Section 7. Prohibitions

7.0 Surface water supplies for private or semi-public water supplies shall be prohibited.

7.1 Cisterns shall be prohibited.

7.2 Cross connections shall be prohibited. No cross connection between a private source of water supply shall be allowed.

7.3 Other cross connections for whatever purpose shall not be allowed without a written permit from Mass. Dept. of Public Health.

7.4 All homes already on private wells must report to Board of Health within 6 months.

7.5 No lot may be connected to both Town and Private water system.

Section 8. Enforcement

8.0 Variances

8.0.1 The Board of Health may vary the application of any provision of these regulations with respect to any particular case, when in its opinion, the enforcement thereof would do manifest injustice, provided that the decision of the Board of Health shall be in writing.

8.1 Variance, Grant of special permission, Expiration, Modifications, Suspension of

8.1.1 Any variance or other modification authorized to be made by these regulations may be subject to such qualification, revocation, suspension or expiration as the Board of Health expresses its grant. A variance or modification authorized to be made by these regulations may otherwise be revoked, modified, or suspended, in whole or in part, only after the holder thereof has been notified in writing and has been given an opportunity to be heard.

8.2 General Enforcement

8.2.1 The provisions of Article 1 of the State Environmental Code shall govern the enforcement of these regulations.

8.3 Orders: Service and Content

8.3.1 If an examination as provided for in regulation 3.2.1 or 3.2.2 reveals failure to comply with the provisions of these regulations, the Board of Health may order the person responsible to comply with the violated provision.

8.4 The inspection and these regulations cannot be construed as a guarantee by the Town of Walpole, or its agents, that the water system will function satisfactorily.

8.5 The Board of Health may require a restriction to be recorded in the Registry of Deeds in cases that, in the opinion of the Board of Health, the water analyses show marginal compliance with the criteria of these regulations.

Section 9. Adoption and Date of Effect

These rules and regulations were adopted by vote of the Board of Health, Town of Walpole, Massachusetts, and are to be in full force and effect on and after **August 15, 1985** and shall, before said date, be published in this Town and a copy thereof shall be deposited in the office of the Town Clerk.

Application For Permit to Construct A Well

I hereby petition the Board of Health of Walpole, MASSACHUSETTS for a permit to construct a well.

Location of Well: _____ Lot#_____

Name of Owner: _____ Tel.#_____

Address of Owner: _____

Name of Well Driller: _____ Tel.#_____

Address of Well Driller: _____

A plot plan shall be submitted with this application as required by the Walpole Board of Health in the "Minimum Sanitation Standard for Private or Semi-Public Water Supply". The undersigned acknowledges that he must, before commencing construction or use of the system which is the subject matter of this application, secure any and all other permits which may be required by the Laws of the Town of Walpole and the Commonwealth of Massachusetts, and agrees to abide by all rules and regulations of the Town of Walpole, and the Commonwealth of Massachusetts. The undersigned also understands that NO OCCUPANCY OF THE FACILITIES WHICH THE WELL IS TO SERVE MAY BE PERFORMED UNTIL THE WELL IS INSTALLED, COMPLETED, AND INSPECTED, AND HAS BEEN DEMONSTRATED TO SUPPLY WATER OF THE QUALITY AND QUANTITY SPECIFIED IN THE "MINIMUM SANITATION STANDARD FOR PRIVATE OR SEMI-PUBLIC WATER SUPPLY'.

DATE: _____ Signature of Applicant: _____

Is the installed well within 100 feet of the Right of Way _____ YES _____ NO

If YES, what type of Right of Way

_____ roadway

_____ railroad

_____ utility lines

The following information must be supplied to the Board of Health for its review before any approval can be given for use of the well and/or occupancy permit:

Must be signed by well contractor and company performing pump test, also, if different.

Well and Pump Test Data:

Location: _____

Date of Pump Test: _____

Depth of Well: _____

Depth of Ledge below surface Grade: _____

Depth of Casing: _____

Diameter of Well: _____

Depth of static water level below grade before pump test: _____

Static water level depth after 24 hours: _____

Well yield in GPM during pump test* _____
*Started pumping at _____ at rate of _____ GPM
*Stopped pumping at _____ at rate of _____ GPM
Depth of pump during pump test _____

Size of pump for pump test (HP): _____

Depth of pump to be installed for house: _____

Size of pump to be installed for house: _____

Name of Well Drilling Company: _____
(must be registered with Mass. Water Resources Commission)

Name of Company performing pump test: _____

Casing sealed with: _____

WELLS MUST BE TESTED FOR THE FOLLOWING BACTERIOLOGICAL AND CHEMICAL ANALYSIS MUST BE PERFORMED ON A SAMPLE.

Sample must be taken from a tap in the building.

Total Bacteria Count at 35 C.	Manganese
Total Coliform per 100 ml	pH
Ammonia Nitrogen	Color
Nitrite Nitrogen	Odor
Nitrate Nitrogen	Turbidity
Chloride	Alkalinity
Sodium	Total Hardness
Iron, Total	Copper

A bacteriological test to indicate a 0-100 ML coliform density shall be required. A total bacteria count shall also be determined at 35 C.

Water quality results shall meet the following limits to conform to current and Federal and Mass. Drinking Standards.

pH	6.5 - 8.5
Specific Conductance	500 Mmhos/cm
Turbidity	5 SU
Iron	.03 ppm*
Manganese	.05 ppm*
Nitrate-Nitrogen	10 ppm
Chloride	250 ppm
Copper	1.0 ppm

* Excessive iron and manganese may be treated to achieve the required water quality standards.

* Sodium to be reported to the homeowner if greater than 20 mg/l. The Board of Health will evaluate other parameters on a case-by-case basis to establish the water's suitability as a domestic water supply.

Screening for Heavy Metal Toxicity must also be done in accordance with EPA Methods.

Coliform Group Bacteria:

Significance:

The Standard Plate Count indicates the general bacterial population of the well at the time of collection.

The coliform group bacteria includes organisms found in the intestinal tracts of warm blooded animals, birds, decaying organic matter (hay, leaves, wood, etc.), the top 2 to 3 feet of the soil, lakes, ponds, brooks, rivers, drainage and types of vegetation.

Because the organisms can cause some illness; because the presence of coliform organisms in the water suggests that other more harmful organisms may be present, water containing one or more coliform group bacteria per 100 ml of sample should not be used for drinking or cooking purposes unless boiled 5 minutes or disinfected by other means.

This bacteria is of animal origin (intestinal tract) and may be considered as closely associated with disease causing organisms. On this factor, none should be present.

Color - APC Units - Ground water ought to be practically free from color. For attractive water - color should not exceed 15 units.

Turbidity - NT Units - Recommended limit not to exceed 5 units.

Odor & Taste - For water to be of high quality, the water should be odor free and taste good.

pH - The pH value defines the concentration of free hydrogen ions in solution. Expressed on a scale extending from 0 or very acid to 14 or very alkaline with 7.0 being neutral.

Specific Conductance - Conductivity is a good criterion for measuring the degree of mineralization and assessing the affect of diverse ions on chemical equilibria.

Total Alkalinity - The alkalinity of this water represents its content of carbonates and bicarbonates.

Free Carbon Dioxide - Well water having a low pH and a Free CO level in excess of 50.mg/l will be corrosive to iron, bronze, brass and copper tubing and fittings.

Total Hardness - Standard not to exceed 50. mg/l. Waters having a hardness level of 50 to 100 are in the medium hardness range, over 100 very hard.

Calcium - Calcium contributes to the hardness of water. Appreciable amounts of calcium salts break down on heating and form scale in boilers, pipes and cooking utensils.

Magnesium - Magnesium is a common constituent of natural water. Magnesium and calcium ions are principal contributors to water hardness. Concentrations in excess of 125 mg/l can exert a cathartic and diuretic action.

Sodium - Recommended limit not to exceed 20 mg/l.

Potassium - Potassium concentrations in drinking water seldom exceed 20. mg/l/

Total Iron - Standard not to exceed 0.3 mg/l.

Manganese - Standard not to exceed 0.05 mg/l. The principal reason for limiting the concentration of maganese is to reduce esthetic and economic problems.

Silica - Silica content of natural water is most commonly in the 1 to 30 mg/l. Silica in water is undesirable because it forms difficult to remove silica scales.

Sulfates - Standard not to exceed 250 mg/l.

Chloride - Standard not to exceed 250 mg/l.

Nitrogen - Ammonia is present in variable concentrations in many surface and ground waters. Its occurrence in ground water is generally a result of natural reduction processes.

Nitrogen - Nitrite - Nitrite in water poses a health hazard, but fortunately seldom occurs in high concentrations. Waters with a nitrogen - nitrite concentration over 1 mg/l should not be used for infant feeding.

Nitrogen - Nitrate - Standard not to exceed 10. mg/l. Nitrate, in high concentrations can and do cause methemoglobinemia or so-called nitrate poisoning in infants. Water with 10 or more mg/l of nitrate is unsatisfactory and is not considered safe for drinking or cooking. It is especially dangerous to children and should never be used in infant formulas.

Copper - Standard not to exceed 1.0 mg/l